

SOFTWARE DIMENSION

INPUT/OUTPUT DIMENSION

PROCESSING DIMENSION

# HONEYWELL

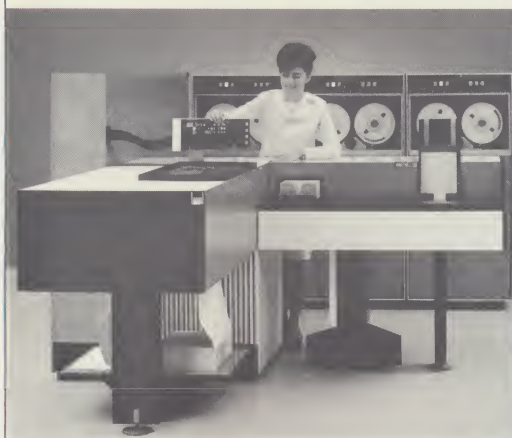
## SPECIFICATION SUMMARY

# SERIES 200

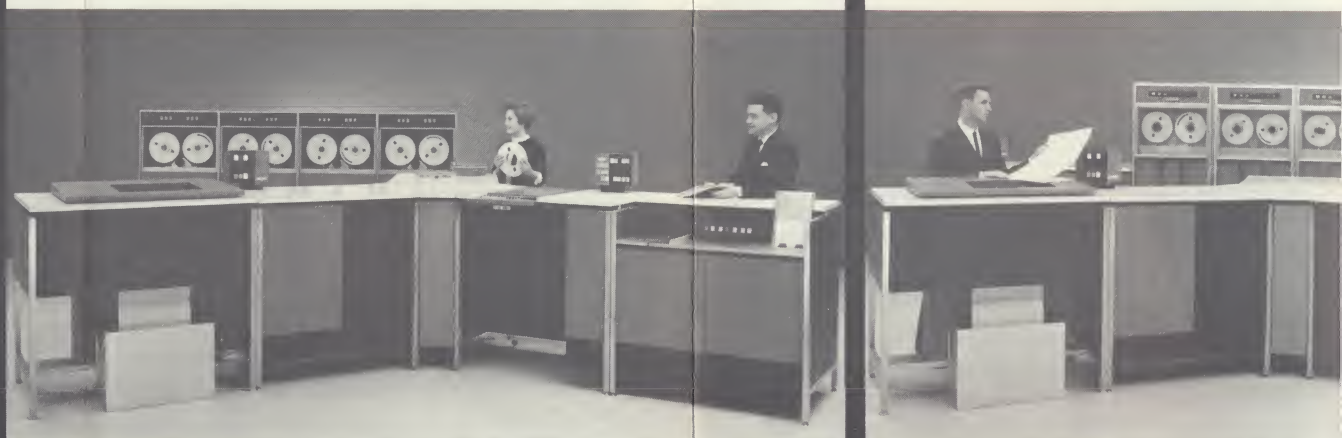
NEW DIMENSIONS OF PROVEN COMPUTER PERFORMANCE WITH EXCEPTIONAL ABILITY TO MATCH THE EXACT DIMENSIONS OF YOUR BUSINESS



# SERIE



120



200



1200

# S 200



2200

4200



## SOFTWARE DIMENSION

## PROGRAM PREPARATION AIDS

*EASYCODER Assembly System* . . . Combines power with flexibility of operation. Available for small, medium, and large systems.

*COBOL Compiler* . . . Paralleling the modularity of Series 200 hardware, various COBOL versions implement an extensive set of language modules, expanding the operating features of COBOL as the machine capacity is increased.

*FORTRAN Compilers* . . . All Series 200 Fortran compilers are designed for rapid compilation and optimum efficiency of object coding. Translated programs can be combined with other previously compiled and assembled programs and immediately executed, thus reducing turnaround time to a minimum.

*LIBERATOR Conversion Programs*

*Bridge* . . . Accepts an IBM 1400-series machine-language program, converts it into a Series 200 machine-language program, and produces a composite listing of the competitive and Honeywell programs with diagnostics. Run times for converted programs are up to several times faster than the original program.

*Easytran* . . . Converts SPS or Autocoder programs into Easycoder programs and produces a listing with both the source coding and Easycoder coding. Easytran can be run on either IBM 1400-series or Honeywell Series 200 systems.

## GENERALIZED DATA MANIPULATION PROGRAMS

*TIPTOP (Magnetic Tape Input/Output Package)* . . . Handles both Honeywell and competitive data conventions. Provides object code for reading and writing tape records, blocking and unblocking of items within records, opening and closing files. Detects and automatically corrects errors.

*TOPPER (Paper Tape Input Routine)* . . . An input program for paper tape systems, TOPPER can handle 5-, 6-, 7-, and 8-level paper tapes. It performs all of the functions performed by TIPTOP with the addition of data editing. Exits are also provided for user-supplied code conversion tables.

*Tape Sort and Collate Programs* . . . Generalized programs which adapt themselves, as directed by programmer-specified parameters, to operate in a particular configuration and to sort and collate data in a particular format. All sort programs take advantage of industry-acclaimed Polyphase sorting techniques developed by Honeywell.

*Scientific Subroutines* . . . An extensive library of subroutines complementing the capabilities of the Fortran compilers. This library includes standard Fortran routines — such as square root, exponential, trigonometric, and logarithmic functions — as well as matrix, statistical and other routines. Scien-

tific hardware, though not required by these subroutines, increases their operating speed.

*Report Generation* . . . For automatic creation of reports according to user specifications. The programmer merely prepares a set of parameters defining control fields and report lines.

*Communication Software* . . . A complete set of software for monitoring communication activities in Series 200 systems. It includes the following routines: *Interrupt* — Upon a program interrupt, this routine directs data transfer between the communication control unit and the central processor and then returns control to the main program; *Message Queueing* — Controls the order in which messages are stored, processed, and transmitted; *Error Control* . . . Corrects errors in messages received from other communication stations.

*Random Access Software* . . . A comprehensive array of programming and operating aids that includes a Loader/Monitor, a formatting program, a program for updating program files, a special sort, input/output routines, and utility routines.

## OPERATING SYSTEM

*Control Programs* . . . Provide for the automatic processing of sequential programs during checkout or production runs. These programs handle such functions as loading, segmentation control, library search; control space and time sharing among several jobs running concurrently; handle all communication between the operator and the running programs; provide for the effective coordination of the system operations from a single location.

## Utility Routines

*UPDATE AND SELECT PROGRAM* . . . Under control of input director cards, this program performs master file update, program selection and directory listing.

*DYNAMIC TAPE AND MEMORY DUMP ROUTINES* . . . Provide for automatic recording of the contents of memory and magnetic tape files.

*PATCH ROUTINE* . . . Enables octal changes (or corrections) to be made to specified programs at object program execution time. Changes occur in core memory only and do not affect the object program stored on the run tape.

*THOR (Tape Handling Option Routine)* . . . A set of general tape-handling and correction routines performing the functions of compare and print, locate, correct and copy, and many others.

*SCOPE (System for Coordination of Peripheral Equipment)* . . . A group of independent routines which control the automatic transfer of data between pairs of peripheral devices, such as magnetic tape to punched card, or paper tape to magnetic tape. "Own-coding" routines may be included to perform such functions as editing and unblocking of records.

## INPUT/OUTPUT DIMENSION

## MAGNETIC TAPE UNITS

*1/2-Inch Tape*

Densities (char/in) — 200/556/800

Data Transfer Rates (char/sec) — From 7,200 to 83,300

*3/4-Inch Tape*

Densities (char/in) — 533/740

Data Transfer Rates (char/sec) — From 32,000 to 88,800

## CARD UNITS

High-Speed Reader — 800 (80- or 51-column) cards per minute

Intermediate-Speed Reader — 400 (80-column) cards per minute

Punch — 100-400 cards per minute (rate varies with number of columns punched)

Reader/Punch: Reader — 400 (80-column) cards per minute

Punch — 100-400 cards per minute (rate varies with number of columns punched)

## RANDOM ACCESS DRUM

Capacity — 2,621,440 characters per drum; eight drums per control; total number of control units limited only by number of I/O trunks.

Access time — 27.5 milliseconds

Transfer rate — 102,000 characters per second

## PRINTERS

450 lines per minute

650/1300 lines per minute

950/1266 lines per minute

## PAPER TAPE UNITS

Reader — 600 frames (characters) per second

Punch — 120 frames (characters) per second



## COMMUNICATION EQUIPMENT

Single-Line Communication Control Units  
Multi-Line Communication Control Units  
Data Station remote communication terminal

## ON-LINE ADAPTER UNIT

High-speed memory-to-memory data transfer (167,000 characters per second)

## SWITCHING UNITS

Peripheral Control Switching Units  
Magnetic Tape Unit Switching Units  
Communication Control Switching Units

## INTERVAL TIMER

Causes interrupts at regular intervals; additional feature allows single interrupts within range of 0.02 seconds to 262.143 seconds.

## TIME-OF-DAY CLOCK

Records time in hours, minutes, seconds, over 24-hour range — from .1 second to 23:59:59.9; sends time to central processor upon command

## MICR CONTROL UNITS

Control data transfer for 1600- and 1560-document-per-minute sorter-readers

## MASS MEMORY FILE

15-Million-Character Transport  
Access time — 95 milliseconds  
60-Million-Character Transport  
Access Time — 150 milliseconds  
300-Million-Character Transport  
Access Time — 225 milliseconds  
Transfer rate — 100,000 characters per second  
Control Unit — Maximum of eight transports in any combination

# PROCESSING DIMENSION

## PROCESSING DIMENSION

- Five models  
120 200 1200 2200 4200
- Memory-cycle speed ranging from 3 microseconds per character to 188 nanoseconds per character
- Memory capacity ranging from 2,048 characters to 524,288 characters
- From 2 to 16 peripheral operations simultaneous with computing
- From 3 to 64 peripheral control units may be connected to the input/output trunks
- Up to 30 index registers and up to 32 control registers
- Operations: Arithmetic, logical, control, editing, input/output
- Variable-length instructions
- Direct addressing of all memory locations
- Indexed and indirect addressing, and variable-length address interpretation (two, three, or four characters)
- Multi-level code handling facility
- Storage protect
- Scientific capability
- Communication capability with automatic program interrupt
- Processing unit: 6-bit character
- Instruction format: Variable, two-address

### 120

- Memory speed: Three microseconds per character
- Memory capacity: 2,048 to 32,768 characters
- Index registers: 6 with advanced programming feature
- Operations: Decimal and binary arithmetic, control, and logical operations; advanced programming and financial edit instructions additional
- Automatic interrupt
- Read/write channels: 2 standard; 1 additional
- Input/output trunks: 3 standard; up to 10 additional
- Operations simultaneous with computing: 2 standard; 1 additional.

### 200

- Memory speed: Two microseconds per character
- Memory capacity: 4,096 to 65,536 characters
- Index registers: 6 to 15 with advanced programming feature
- Operations: Decimal and binary arithmetic (including multiply/divide), control, and logical operations; advanced programming and financial edit instructions additional
- Automatic interrupt
- Read/write channels: 3 standard; 1 additional
- Input/output trunks: 8 standard; 8 additional
- Operations simultaneous with computing: 3 standard; 1 additional

### 1200

- Memory speed: 1.5 microseconds per character
- Memory capacity: 8,192 to 131,072 characters
- Index registers: 6 to 15
- Operations: Decimal and binary arithmetic (including multiply/divide), control, logical, financial edit, and advanced programming; binary scientific instructions additional
- Range of normalized floating point values:  $10^{-616}$  to  $10^{+616}$
- Automatic interrupt
- Read/write channels: 4
- Input/output trunks: 16
- Operations simultaneous with computing: 4

### 2200

- Memory speed: One microsecond per character
- Memory capacity: 16,384 to 262,144 characters
- Index registers: 6 to 30
- Operations: Decimal and binary arithmetic (including multiply/divide), control, logical, financial edit, and advanced programming; binary scientific operations additional
- Range of normalized floating point values:  $10^{-616}$  to  $10^{+616}$
- Automatic interrupt
- Memory protect (optional)
- Read/write channels: 4 standard; 4 additional
- Input/output trunks: 16 standard; 16 additional
- Operations simultaneous with computing: 4 standard; 4 additional

### 4200

- Memory speed: 750 nanoseconds per 4 characters (188 nanoseconds per character)
- Memory capacity: 32,768 to 524,288 characters
- Index registers: 6 to 30
- Operations: Decimal and binary arithmetic (including multiply/divide), control, logical, financial edit, and advanced programming; binary scientific operations additional
- Range of normalized floating point values:  $10^{-616}$  to  $10^{+616}$
- Automatic program interrupt
- Memory protect (optional)
- Read/write channels: 8 standard; up to 8 additional
- Input/output trunks: 32 standard; up to 32 additional
- Operations simultaneous with computing: 8 standard; up to 8 additional